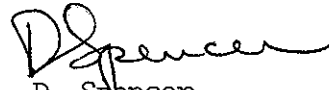


MEMORANDUM FOR RECORD

April 13, 1966

SUBJECT: Apollo Program Directive No. 17 (Apollo Navigation Working Group)

1. On 4/12/66, E.P. Bertram, J.H. Williams and D. Spencer discussed the subject document. E.P. Bertram indicated a desire for a "Note to Petrone" pointing out the conflicts of this document with others (e.g. Instrumentation & Communications Panel Charter and Flight Evaluation Panel Charter). Also, to indicate no prior coordination with KSC before Directive was published.
2. Subsequent check with Walt Wagner on 4/13/66 revealed that he had handled prior coordination with KSC through Dr. Knothe. INS volunteered Ralph Gwinn for membership on the ANWG. SCO declined membership. LVO has not responded to request to nominate anyone. E.P. Bertram asked Wagner to indicate to R.A. Petrone that perhaps Dr. Bruns and Dr. Knothe should represent KSC in order to have relative membership status with other NASA Centers. Wagner says he will do so. There is no objection to Gwinn remaining on membership also.

  
D. Spencer

APOLLO PROGRAM DIRECTIVE NO. 17

TO : DISTRIBUTION

FROM:

*Samuel C. Lilly*  
APOLLO PROGRAM DIRECTOR

CONCURRENCE:

*Gerald M. Tringali*  
DEPUTY ASSOCIATE ADMINISTRATOR, OTDA

SUBJECT :

Apollo Navigation Working Group (ANWG)

ACTION :

MSC and GSFC, in close cooperation with MSFC and KSC, are assigned the responsibility of providing information and recommendations concerning the individual and/or combined utilization of Apollo tracking and navigation systems to best perform the Apollo mission. The ANWG is hereby officially established to carry out this responsibility.

REFERENCES :

- a) MSC-GSFC, ANWG Technical Report No. 65-AN-1.0, "Apollo Missions and Navigation System Characteristics" - February 5, 1965
- b) MSC-GSFC, ANWG Technical Report No. 65-AN-2.0, "Apollo Navigation-Ground and Onboard Capabilities" - September 1, 1965

I. PURPOSE

The purpose of this directive is to officially establish the Apollo Navigation Working Group and define its organization and required functions.

II. SCOPE

This directive establishes the requirement for preparing and coordinating intercenter analyses and studies associated with ground and onboard tracking and navigation in the Apollo Program.

### III. RESPONSIBILITIES

The Apollo Navigation Working Group will be responsible for:

- A. The proper analyses necessary to assure full mission support from an onboard and ground tracking point of view.
- B. Assurance that necessary changes in mission ground rules to improve tracking and navigational capabilities, and the proper ground network augmentation to do so, are being implemented at the appropriate Centers.
- C. Assurance that proper physical constants and assumptions are being used by all organizations concerned with tracking, navigation and orbit determination in the primary and backup modes during all phases of the Apollo mission.
- D. The specific functions of the ANWG as defined in attachment #1.

OMSF is responsible for the overall managerial direction to assure proper participation of the Centers and contractors concerned, and will coordinate with OSSA and OTDA as required. It is the responsibility of the ANWG steering committee (see attachment #2) to direct the necessary technical effort, and to indicate changes in mission ground rules, navigation systems and ground tracking at their respective Centers to be coordinated with the appropriate Headquarters Offices.

### IV. ORGANIZATION

The ANWG will be co-chaired by representatives of MSC and GSFC. Full working group membership is provided in attachment #2. The present organization will be continued at this time.

### V. FUNDING

Funding to cover the functions of the ANWG will, in accordance with the respective responsibilities of OMSF, OSSA and OTDA, be provided to the Centers concerned within established management channels and subject to appropriate program controls.

APOLLO NAVIGATION WORKING GROUP

FUNCTIONS

1. Define and analyze tracking and navigation requirements for all phases of planned altered and aborted Apollo missions
2. Develop and standardize analytical models tools, associated constants and assumptions required for tracking and navigation analysis
3. Assess tracking and navigation capabilities of ground and on board systems for each phase of the Apollo mission
4. Establish optimum utilization and coordination of ground tracking and on board information for trajectory determination
5. Determine the influence of tracking data degradation or loss on trajectory determination and accuracy
6. Recommend mission ground rules, on board and ground network augmentations to improve navigational capabilities
7. Evaluate the real performance of the ground tracking system and its capability through post flight analyses

STEERING COMMITTEE

Mr. J. P. Mayer (MSC) - Dr. F. O. Vonbun (GSFC)

CO-CHAIRMEN

Mr. J. F. Dalby (MSC) - Dr. B. Kruger (GSFC)

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MSFC  
KSC

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JPL  
\*MIT  
TRW  
BELLCOMM  
BISSETT-BERMAN

LIST OF MEMBERS BY NAME

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Bond, V.	Chi, A.	Vegos, C.	Hill, R.	
Cohen, A.	Kahn, W.			
Dalby, J.	Kruger, B.			
Mayfield, S.	Paddack, S.			
McPherson, J.	Schmid, P.			
Mitchell, P.				
Schiesser, E.				
<u>BELLCOMM</u>	<u>TRW</u>	<u>BBC</u>		
Hagner, D.	Steiner, P.	Engel, Howard		
		Epstein, Herman		

\*Membership to be determined

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KSC/Data Manager (60)(A. Harper, PPR 33)

MSFC/von Braun (Director)  
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MSC/Gilruth (Director)  
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GSFC/Laverne R. Stelter

March 31, 1966

APOLLO PROGRAM DIRECTIVE NO. 17

REFERENCE COPY

TO : DISTRIBUTION

FROM:

*Samuel T. Lilly*  
APOLLO PROGRAM DIRECTORCONCURRENCE: *Gerald M. Trumy*  
DEPUTY ASSOCIATE ADMINISTRATOR, OTDA

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\*Membership to be determined

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